Post-Secondary Lesson Plan: Earth Science

Overview	Students will understand the basics of measuring the magnitude of earthquakes by using the Richter Scale.
Objectives	Students will be able to: • Understand the basic purpose and construction of the Richter Scale. • Use the Richter Scale to calculate different magnitudes of different earthquakes in order to compare the different quakes using both a chart and a graph.
Learning Environment	• Lecture hall with between 30 and 50 students in the class. • Computer access for students • College/University setting
Type of Students	• College/University students enrolled in an introductory Earth and Atmospheric Science class.
Standards	ES.1.23 Explain motions, transformations, and locations of materials in Earth's lithosphere and interior. For example, describe the movement of the plates that make up Earth's crust and the resulting formation of earthquakes, volcanoes, trenches, and mountains.
Materials	• Computer with Internet access to be able to access Wolfram|Alpha • Calculator • Pencil or pen • Graph paper • List of magnitudes of different earthquakes
Procedure	1. Introduce the lesson by asking students what they already know about earthquakes and the Richter Scale. Have them record their answers on a sheet of paper. 2. From their textbook and notes, show the students the basic structure and implications of the Richter Scale. They will add these points to their sheet of paper. 3. Next, have students use Wolfram|Alpha to look-up the amount of energy (in joules) that earthquakes of a certain magnitude have. (Provide students with a list of magnitudes for observation). 4. Students should then compare these magnitudes. They will construct a chart with the magnitude on one side and the energy in joules on the other. They will then use this data to plot points on a graph in order to visually represent how the different earthquakes compare to one another.
Application	Understanding the basic implications of the Richter Scale will allow students to better comprehend the earthquakes that occur each year and why so much damage occurs as an effect.
Evaluation	Students will write a short summary of what they have learned about the Richter scale and the magnitude of earthquakes. They will also include a real-life application in their summary in which they compare two recent earthquakes and apply their knowledge of the Richter Scale to demonstrate

	which earthquake was more powerful. This assignment should be about 1-3 pages in length and is worth 25 points.